

AMENDMENTS TO THE CLAIMS

1. (Previously presented) A magnetic resonance imaging (MRI) guidewire, comprising:

a guidewire having a distal end sized and shaped for insertion into a subject and a proximal end sized and shaped for insertion into a connector coupled to an MRI scanner, the guidewire having an inner conductor extending at least a major length of the guidewire and an outer conductor coaxially disposed about the inner conductor and extending at least the major length of the guidewire;

wherein the proximal end of the guidewire comprises:

an outer conductor contact coupled electrically to the outer conductor; and

an extended section of the inner conductor that extends proximally beyond the outer conductor contact, the extended section of the inner conductor including:

an inner conductor contact having an electrically conductive material disposed at least partially around a portion of the extended section of the inner conductor, the inner conductor contact coupled electrically to the inner conductor; and

an insulated area interposed axially between the outer conductor contact and the inner conductor contact, the insulated area having an electrically insulating material disposed at least partially around at least a portion of the extended section of the inner conductor;

wherein the distal end of the guidewire defines an antenna configured to detect MRI signals, and wherein the inner and outer conductors are configured to conduct the detected MRI signals to the proximal end of the guidewire.

2. (Previously presented) The guidewire of claim 1, wherein the guidewire diameter is sized for insertion into a lumen of an anatomic structure of a subject, wherein the inner conductor contact with the inner conductor contact have a diameter that is greater than a diameter of the inner conductor extending along the outer conductor.

3. (Previously Presented) The guidewire of claim 1, wherein the guidewire is sized and configured for insertion into a blood vessel.

4. (Previously Presented) The guidewire of claim 2, wherein the guidewire is sized and configured for insertion into a human subject.

5. (Original) The guidewire of claim 1, wherein the guidewire diameter is less than about 0.040 inches.

6. (Original) The guidewire of claim 5, wherein the diameter is between about 0.012 inches and 0.038 inches.

7. (Original) The guidewire of claim 6, wherein the diameter is about 0.014 inches.

8. (Original) The guidewire of claim 1, wherein a diameter of the inner conductor is between about 0.004 inches and about 0.012 inches.

9. (Original) The guidewire of claim 1, wherein the guidewire has a stiffness sufficient for insertion into a lumen of an anatomic structure of a subject.

10. (Previously presented) The guidewire of claim 1, wherein the guidewire is biocompatible and is sized and shaped for detachable insertion into the connector.

11. (Original) The guidewire of claim 1, wherein the guidewire comprises a conductive material.

12. (Original) The guidewire of claim 1, wherein the guidewire is composed of nonmagnetic materials.

13. (Original) The guidewire of claim 1, wherein the guidewire comprises a superelastic material.

14. (Original) The guidewire of claim 13, wherein the superelastic material comprises titanium.

15. (Original) The guidewire of claim 13, wherein the superelastic material comprises Nitinol.

16. (Previously Presented) The guidewire of claim 1, wherein the guidewire comprises a material that is sterilizable.

17. (Original) The guidewire of claim 1, wherein the outer conductor contact and the inner conductor contact are each annular in shape.

18. (Original) The guidewire of claim 17, wherein the outer conductor contact and the inner conductor contact have approximately equal diameters.

19. (Cancelled)

20. (Original) The guidewire of claim 1, wherein the insulated area is annular in shape.

21. (Cancelled)

22. (Previously presented) The connector assembly of claim 45, further comprising an extension attachment coupling the MRI guidewire to the MRI scanner.

23. (Cancelled)

24. (Previously presented) The connector assembly of claim 45, wherein the MRI guidewire is configured and arranged such that the MRI guidewire is releasably engageable to the connector a plurality of times during an interventional procedure to allow different medical devices to be loaded onto and removed from the MRI guidewire, and wherein the connector includes a wiper in communication with the MRI guidewire to allow the MRI guidewire to slidably advance therethrough to inhibit the introduction of fluids into the connector.

25. (Previously presented) An MRI compatible medical coaxial cable, comprising:
the coaxial cable having opposing proximal and distal ends with the proximal end sized and shaped for insertion into a connector coupled to an MRI scanner, the coaxial cable having an inner conductor extending at least a major length of the coaxial cable and an outer conductor coaxially disposed about the inner conductor and extending at least a major length of the coaxial cable, wherein the proximal end of the coaxial cable has:
an outer conductor contact coupled electrically to the outer conductor; and
an extended section of the inner conductor that extends proximally beyond the outer conductor contact, the extended section of the inner conductor including:
an inner conductor contact having an electrically conductive material disposed at least partially around a portion of the extended section of the inner conductor, the inner conductor contact coupled electrically to the inner conductor;
and
an insulated area positioned to isolate electrically the outer conductive contact from the inner conductive contact, and having an electrically insulating material disposed at least partially around a portion of the extended section of the inner conductor,
wherein the coaxial cable is configured to conduct MRI signals from a distal end portion to the proximal end.

26. (Previously Presented) The guidewire of claim 1, wherein the inner conductor is a center conductor.

27. (Previously presented) The connector assembly of claim 45, wherein the connector is in communication with an MRI interface circuit or includes an MRI interface circuit and is configured to allow transmission of the received MRI signals to the MRI scanner.

28. (Previously presented) The connector assembly of claim 45, wherein the connector is releasably attachable to the outer and inner conductors whereby different medical devices can be serially removed from and attached to the MRI guidewire.

29. - 30. (Cancelled)

31. (Previously presented) The connector assembly of claim 45, wherein the connector comprises an MRI scanner interface circuit, and wherein at least one of the MRI guidewire or the connector comprises a connection detector that identifies when the MRI guidewire is disconnected from the MRI scanner interface circuit.

32. (Previously presented) The connector assembly of claim 45, wherein the connector includes a guidewire sensor that recognizes an electrically or electronically encoded serial number associated with the MRI guidewire that is unique to a specific MRI guidewire to thereby limit a respective MRI guidewire to a single-use.

33. (Previously Presented) The coaxial cable of claim 25, wherein the inner conductor is a center conductor.

34. (Previously presented) The connector assembly of claim 46, wherein the connector is sized and configured to receive the proximal end of the coaxial cable and is in

communication with an MRI interface circuit and is configured to allow transmission of received MRI signals from a distal end portion of the coaxial cable to the MRI scanner.

35. (Previously presented) The connector assembly of claim 46, wherein the connector comprises electrical non-magnetic conductive shielding configured to inhibit RF interference when the guidewire is in operative use with the MRI scanner, and wherein the coaxial cable is configured to be inserted into a patient.

36. (Previously presented) The connector assembly of claim 46, wherein the connector comprises an MRI scanner interface circuit, and wherein at least one of the coaxial cable or the connector comprises a connection detector that identifies when the coaxial cable is disconnected from the MRI scanner interface circuit.

37. (Cancelled)

38. (Previously presented) The coaxial cable of claim 25, wherein the coaxial cable is a single-use disposable medical device.

39. - 44. (Cancelled)

45. (Previously presented) A connector assembly comprising:
the MRI guidewire of claim 1; and
a connector comprising a non-magnetic body with a conductive material defining an RF shield and a DC blocking circuit;
wherein the MRI guidewire is configured and arranged to electrically couple to an MRI scanner;
wherein the RF shield and the DC blocking circuit are configured to block DC voltage transmission from the MRI scanner to MRI guidewire.

46. (Previously presented) A connector assembly comprising:
the medical coaxial cable of claim 25; and
a connector comprising a non-magnetic body with a conductive material defining an RF shield and a DC blocking circuit;
wherein the medical coaxial cable is configured and arranged to electrically couple to an MRI scanner;
wherein the RF shield and the DC blocking circuit are configured to block DC voltage transmission from the MRI scanner to the medical coaxial cable.

47. (New) The guidewire of claim 1, wherein the inner conductive contact has approximately the same diameter as the outer conductor contact.

48. (New) The coaxial cable of claim 25, wherein the inner conductive contact has approximately the same diameter as the outer conductor contact.